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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,109	12/05/2003	Michael Willsch	2003P12389US01	3141

7590 11/22/2004  
Siemens Corporation  
Intellectual Property Department  
170 Wood Avenue South  
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EXAMINER

GONZALEZ, MADELINE

ART UNIT PAPER NUMBER

2859

DATE MAILED: 11/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/729,109

Applicant(s)

WILLSCH ET AL.

Examiner

Madeline Gonzalez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/5/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5 and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Choy et al. (WO 00/06796) [hereinafter Choy].

Choy discloses a system for monitoring a thermal barrier coating, as shown in Fig. 2, having:

- a combustion turbine component 10 coated with a thermal barrier coating 20, the coating 20 comprising:
  - a thermal stimulatable substance adapted to function as a visual high-lighter (see page 5, lines 9-11); and
  - a mechanism to adhere the thermal stimulatable substance in the coating 20 (see page 6, lines 16-20);
- a detector 100 to detect removed pieces of the thermal stimulatable substance;
- an analyzer 130 to analyze the removed pieces of the thermal stimulatable substance to determine damages of the coating 20;
- an output device 140 to output a damage readable form;

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- wherein the component 10 is coated, in a broad sense, with a plurality of layers of thermal barrier coatings, as shown in Figs. 11 and 12;
- wherein a plurality of components are coated with a thermal barrier coating (see page 4, line 6);
- wherein a plurality of components are coated with thermal barrier coatings, the thermal barrier coating containing different thermal stimulatable substances, as shown in Fig. 11;
- wherein the stimulatable substance is preferably a rare earth metal;
- wherein the combustion turbine component 10 is a turbine blade (see page 4, line 6);
- wherein the combustion turbine component 10 is a combustion engine (see page 4, line 6);
- wherein the combustion turbine component 10 is a heat shield (see page 4, line 7);

3. Claims 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Choy (WO 00/06796).

Choy discloses a method for monitoring a thermal barrier coating 20, including the steps of:

- providing a thermal stimulatable substance adapted to function as a visual highlighter;

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- providing a mechanism to adhere the thermal stimulatable substance in the coating 20;
- providing a detector 100 to detect removed pieces of the thermal stimulatable substance;
- providing an analyzer 130 to analyze the removed pieces of the thermal stimulatable substance to determine damages of the coating 20;
- providing an output device 140 to output a damage readable form;
- providing a mechanism for remote monitoring, as shown in Fig. 2;
- providing a mechanism for real-time monitoring; and
- wherein the stimulatable substance is preferably a rare earth metal.

4. Claims 16-19 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Choy (WO 00/06796).

Choy discloses a component 10 having:

- a thermal barrier coating 20 with a thermal stimulatable substance adapted to function as a visual high-lighter (see page 5, lines 9-11), and a mechanism to adhere the thermal stimulatable substance in the coating 20 (see page 6, lines 16-20);
- a detector 100 to detect removed pieces of the thermal stimulatable substance;

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- an analyzer 130 to analyze the removed pieces of the thermal stimulatable substance to determine damages of the coating 20;
- wherein the component 10 is a combustion turbine component;
- wherein the component 10 is coated, in a broad sense, with a plurality of layers of thermal barrier coatings, as shown in Figs. 11 and 12;
- wherein the thermal barrier coating containing different thermal stimulatable substances, as shown in Fig. 11;
- wherein the stimulatable substance is preferably a rare earth metal; and
- wherein the component 10 is a metal component.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Choy (WO 00/06796).

Choy discloses all the subject matter claimed above in paragraph 2 with the exception of the specific stimulatable substance.

With respect to the specific stimulatable substance: Choy discloses a system including a thermal stimulatable substance, said substance being a rare earth metal. The particular type of substance claimed by applicant, i.e., an alkali metal or an alkaline earth metal, is only considered to be the use of a “ preferred ” or “ optimum ” material out of a plurality of well known materials that a person having ordinary skill in the art at the time the invention was made would have find obvious to provide using routine experimentation based, among other things, on the intended use of Applicant’s apparatus, i.e., suitability for the intended use of Applicant’s apparatus. See *In re Leshin*, 125 USPQ 416 (CCPA 1960) where the court stated that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use an alkali metal or an alkaline earth metal as the stimulatable substance in the system

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disclosed by Choy since alkali metals or alkaline earth metals also have a fluorescence spectrum which varies in dependence on the temperature.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Choy (WO 00/06796).

Choy discloses all the subject matter claimed above in paragraph 3 with the exception of the specific stimulatable substance.

With respect to the specific stimulatable substance: Choy discloses a system including a thermal stimulatable substance, said substance being a rare earth metal. The particular type of substance claimed by applicant, i.e., an alkali metal or an alkaline earth metal, is only considered to be the use of a “ preferred ” or “ optimum ” material out of a plurality of well known materials that a person having ordinary skill in the art at the time the invention was made would have find obvious to provide using routine experimentation based, among other things, on the intended use of Applicant’s apparatus, i.e., suitability for the intended use of Applicant’s apparatus. See *In re Leshin*, 125 USPQ 416 (CCPA 1960) where the court stated that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use an alkali metal or an alkaline earth metal as the stimulatable substance in the system



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disclosed by Choy since alkali metals or alkaline earth metals also have a fluorescence spectrum which varies in dependence on the temperature.

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Choy (WO 00/06796).

Choy discloses all the subject matter claimed above in paragraph 4 with the exception of the specific stimulatable substance.

With respect to the specific stimulatable substance: Choy discloses a system including a thermal stimulatable substance, said substance being a rare earth metal. The particular type of substance claimed by applicant, i.e., an alkali metal or an alkaline earth metal, is only considered to be the use of a “ preferred ” or “ optimum ” material out of a plurality of well known materials that a person having ordinary skill in the art at the time the invention was made would have find obvious to provide using routine experimentation based, among other things, on the intended use of Applicant’s apparatus, i.e., suitability for the intended use of Applicant’s apparatus. See *In re Leshin*, 125 USPQ 416 (CCPA 1960) where the court stated that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use an alkali metal or an alkaline earth metal as the stimulatable substance in the system

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disclosed by Choy since alkali metals or alkaline earth metals also have a fluorescence spectrum which varies in dependence on the temperature.

### *Conclusion*

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Markham and Adiutori disclose apparatuses for monitoring coatings in turbine blades. Kleinerman, Endo et al. ('805), Cote et al. ('846), Wickersheim et al. ('992), Thomas et al. ('659), Beshears et al. ('455), Bantel et al. ('118) and Melancon disclose methods and apparatuses for monitoring defects in coatings of components.

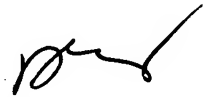
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Madeline Gonzalez whose telephone number is (571) 272-2243. The examiner can normally be reached on Monday-Friday (8:00-5:30), alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F.F. Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MG.



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